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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,124	06/25/2004	Katsuhiko Takahashi	Q81414	7360

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EXAMINER	
NGUYEN, KHANH TUAN	
ART UNIT	PAPER NUMBER
1751	

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/500,124	TAKAHASHI ET AL.	
	Examiner	Art Unit	
	Khanh T. Nguyen	1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 06/25/2004 has been regarded by Examiner and made of record in the application file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> ((b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 4-6, 16-18 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Bergö-Heineman et al (U.S Pat. 2,560,151 hereinafter, "Bergö-Heineman").

Regarding claim 1, Bergö-Heineman discloses an electrically conductive composition comprising a particulate silver compound and a reducing agent. (Col. 2,

lines 17-30) The reference specifically or inherently meets each of the claimed limitations.

The reference is anticipatory.

Regarding claim 2, Bergö-Heineman further discloses the particulate silver compound comprises one type or two or more types, of silver oxide, silver carbonate and silver acetate. (Col. 2, lines 17-30)

Regarding claim 4, Bergö-Heineman further discloses the reducing agent comprises one type, or two or more types, of ethylene glycol, diethylene glycol, triethylene glycol and ethylene glycol diacetate. (Col. 2, lines 17-30)

Regarding claim 5, Bergö-Heineman further discloses an electrically conductive coating formation method comprising the step of coating the electrically conductive composition followed by the step of heating the electrically conductive composition. (Col. 2, lines 32-44)

Regarding claim 6, Bergö-Heineman further discloses an electrically conductive coating obtained by coating the electrically conductive composition followed by heating, wherein the particulate silver compound particles are sinter (fused) onto the surfaces. (Col. 2, lines 32-44)

Regarding claim 16, Bergö-Heineman further discloses an electrically conductive, wherein a dispersion medium is used to disperse or dissolve the particulate silver compound and reducing agent and obtain a liquid electrically conductive composition. (Col. 2, lines 17-25)

Regarding claim 17, Bergö-Heineman further discloses an electrically conductive composition, wherein ethylene glycol (organic solvent) is used as the dispersion medium. (Col. 2, lines 17-25)

Regarding claim 18, Bergö-Heineman further discloses an electrically conductive composition, wherein when the reducing agent is a liquid and the particulate silver compound is dispersed, the reducing agent also serves as a dispersion medium. (Col. 2, lines 17-25)

Regarding claim 21, Bergö-Heineman further discloses an electrically conductive composition, wherein the viscosity of the electrically conductive composition is a paste (about 30-300 poise). (Col. 2, lines 17-25)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 3, 8-10, 13-15 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergö-Heineman et al (U.S Pat. 2,560,151 hereinafter, "Bergö-Heineman") in view of Niihara et al (US Pub. 2004/0005406 hereinafter, "Niihara").

Bergö-Heineman is relied upon as set forth above. With respect to instant claim 3, Bergö-Heineman does not disclose or suggest the average particle diameter of the particulate silver compound is about 0.01-10 .mu.m.

In the same field of endeavor, Niihara discloses the average particle diameter of the particulate silver compound is about 0.01-10 .mu.m. Page 3, [0041]

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use silver particle with average particle diameter of about 0.01-10 .mu.m, as taught by Niihara, in order to provide a novel method which can uniformly coat the metallic film on various types of arbitrary substrates with a thickness on the order of from several nanometers to several thousand nanometers by a simple means without requiring a need for a means having such a multiple of restrictions as in the vacuum system, without caring about generation of a noxious gas

or the like, and free from any restriction on a heating temperature or a selection of a material, and a material coated with a metal by this method.

Regarding claim 8, Niihara further discloses an electrically conductive coating obtained by coating the electrically conductive composition followed by heating for about 30 minutes at range from 0 to 500.degree C. (about 150-200.degree. C.), which satisfies the following formula (1) when W represents the volume resistivity (.OMEGA..multidot.cm) of the electrically conductive coating and X represents its specific gravity: W.ltoreq.-1.72.times.10.sup.-6.times.X+2- .3.times.10.sup.-5 (1). Page 2, [0033]

Regarding claim 9, Niihara further discloses an electrically conductive coating obtained by coating the electrically conductive composition according to claim 1 followed by heating for about 30 minutes at range from 0 to 500.degree C. (about 150-200.degree. C.), which satisfies the following formula (2) when Y represents the number of pores of about 100 nm or larger present in a surface area of about 10 .mu.m.times.10 .mu.m on the uppermost surface of the electrically conductive coating, and Z represents the heating temperature (.degree. C.): Y<-46.08.multidot.Z+- 10112 (2). Page 2, [0033]

Regarding claim 10, Niihara further discloses an electrically conductive composition, wherein the average particle diameter of the particulate silver compound is 1 nanometer of less (about 0.5 .mu.m or less). Page 2, [0030]

Regarding claim 13, Niihara further discloses an electrically conductive composition, wherein a vapor phase method is used to obtain a particulate silver compound having an average particle diameter of about 0.1 .mu.m or less by synthesizing silver oxide by heating a silver halide and oxygen in the vapor phase followed by thermal oxidation. Page 1, [0002]

Regarding claim 14, Niihara further discloses an electrically conductive composition, wherein the amount of reducing agent used is about 20 moles or less with respect to about 1 mole of particulate silver compound. Page 2, [0027]

Regarding claim 15, Niihara further discloses an electrically conductive composition, wherein the amount of reducing agent used is about 0.5-10 moles with respect to about 1 mole of particulate silver compound. Page 2, [0027]

Regarding claim 22, Niihara further discloses an electrically conductive coating obtained by coating the electrically conductive composition followed by heating, wherein the particulate silver compound is reduced, and the reduced silver particulate to form a uniform metallic film (continuous thin coating) on the substrate. Page 2, [0029]

5. Claim 7, is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergö-Heineman et al (U.S Pat. 2,560,151 hereinafter, "Bergö-Heineman") in view of Negm et al (US Pat. 5,399,547 hereinafter, "Negm").

Bergö-Heineman is relied upon as set forth above. With respect to instant claim 7, Bergö-Heineman does not disclose or suggest an electrically conductive coating obtained by coating the electrically conductive composition followed by heating, wherein the volume resistivity is about 3.0.times.10.sup.-6 to about 8.0.times.10.sup.-6 .OMEGA..multidot.cm.

In the same field of endeavor, Negm discloses an electrically conductive coating obtained by coating the electrically conductive composition followed by heating, wherein the coating provides a solidified contact of remarkably reduced electrical resistance (volume resistivity is about 3.0.times.10.sup.-6 to about 8.0.times.10.sup.-6 .OMEGA..multidot.cm). (Col. 3, lines 57-67)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use an electrically conductive coating obtained by coating the electrically conductive composition followed by heating, wherein the coating provides a solidified contact of remarkably reduced electrical resistance, as taught by Negm, in order to provide an electrically conductive coating and is used with any high transition temperature superconductive material.

6. Claims 11 and 12, are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergö-Heineman et al (U.S Pat. 2,560,151 hereinafter, "Bergö-Heineman") in view of Dickenson et al (US Pat. 2,592,870 hereinafter, "Dickenson").

Bergö-Heineman is relied upon as set forth above. With respect to instant claim 11, Bergö-Heineman does not disclose or suggest an electrically conductive, wherein the particulate silver compound is produced by a liquid phase method in which silver oxide is obtained by reacting an aqueous alkaline solution with the product of the reaction between a silver compound and an aqueous silver nitrate solution.

In the same field of endeavor, Dickenson discloses an electrically conductive, wherein the particulate silver compound is produced by a liquid phase method in which silver oxide is obtained by reacting an aqueous alkaline solution with the product of the reaction between a silver compound and an aqueous silver nitrate solution. (Col. 1, lines 39-55) and (Col. 2, lines 1-21)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to produced the particulate silver compound by a liquid phase method in which silver oxide is obtained by reacting an aqueous alkaline solution with the product of the reaction between a silver compound and an aqueous silver nitrate solution, as taught by Dickenson, in order to provide a process for the production of finely divided metallic silver which comprises treating silver oxide with a protein hydrolysis product having a molecular weight of at least three hundred in the ,

presence of an organic base, stronger than ammonia, which is free from halogens and thiol groups.

Regarding claim 12, Dickenson further discloses an electrically conductive composition, wherein the particulate silver compound is produced by a liquid phase method and the colloidal materials act as dispersion stabilizer in the aqueous solution. (Col. 2, lines 1-21)

7. Claims 19 and 20, are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergö-Heineman et al (U.S Pat. 2,560,151 hereinafter, "Bergö-Heineman") in view of Robillard (US Pat. 4,206,017 hereinafter, "Robillard").

Bergö-Heineman is relied upon as set forth above. With respect to instant claim 19, Bergö-Heineman does not disclose or suggest an electrically conductive composition, wherein adding a dispersant prevents secondary aggregation of the particulate silver composition.

In the same field of endeavor, Robillard discloses an electrically conductive composition, wherein adding binder (dispersant) such as methylcellulose, hydroxyethylcellulose, carboxymethylcellulose, polyvinyl-alcohol or polyvinylpyrrolidone can prevents secondary aggregation of the particulate silver composition. (Col. 3, lines 6-12)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to add a binder such as methylcellulose, hydroxyethylcellulose, carboxymethylcellulose, polyvinyl-alcohol or polyvinylpyrrolidone, as taught by Robillard, in order to provide electrosensitive layer being supported by a layer which is a good conductor of electricity brought to a positive potential and containing a substance which is able to supply to the electrosensitive layer the same number of positive charges as electrons injected by the marking electrode.

Regarding claim 20, Robillard further discloses an electrically conductive composition, wherein the dispersant is selected from the group consisting of hydroxypropyl cellulose, polyvinyl pyrrolidone and polyvinyl alcohol, and the amount of the dispersant used is about 0-300 parts by weight to about 100 parts by weight of particulate silver compound. (Col. 3, lines 6-12 and lines 21-25)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh T. Nguyen whose telephone number is (571) 272-8082. The examiner can normally be reached on Monday-Friday 8:00-5:00 EST PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas McGinty can be reached on (571) 272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Khanh Nguyen
November 01, 2006

Mark Kopec
Primary Examiner